Operating Instructions

RTK Instruments Limited
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Facsimile: +44 (0)1423 580501
Web: www.rtkinstruments.com
Email: enquiry@ rtkinstruments.com

Intrinsically Safe Sounder Type DA132

Description

The DA132 Sounder is a lightweight warning Sounder, certified to Ex II 1G Ex ia IIC T4 (Ta –20°C to 55°C) with 32 user-selectable tones, and an output level of over 100dB. The Sounder enclosure is also rated to IP65.

The DA132 can be connected to the DA135 to create a single point annunciator, from a single zener barrier or galvanic isolator.

Installation

Mounting
The Sounder should be mounted using the two available fixing holes in the base. It is recommended that stainless steel nuts and bolts be used if the environment is corrosive.

Removing and Replacing the cover
If required the mechanism for locking the Sounder to the base can be activated by removing the thin section of plastic shown in Fig 1 with side cutters or a similar tool. To open a locked head, remove the small black bung from the hole on the side of the sounder, insert a thin wire/pointer to depress the clip whilst twisting the head.

Weatherproof Installation
The O-ring and bung must be fitted and suitable cable glands used to achieve an IP65 rating. In order to avoid collection of moisture in the speaker horn, the Sounder should not be installed with the grille facing directly upwards.

Wiring
Cable termination should be in accordance with specifications application of the installation.

The base has three knockouts, two on the side and one on the base, to accommodate a 20mm conduit or M20 cable glands.
Ensure that only the correct glands are used to maintain the IP rating of the final assembly

Recommended Cable
0.5 to 2.5mm^2 with earthed screen and insulating sheath. Cable parameters are determined by the output parameters of the interface selected.

Sound Level
The sound level for each of the individual tones are shown in Table 2. This is assuming the DA132 set at full volume, driven from a suitable IS interface as shown in Table 1. A single turn potentiometer is provided to reduce the volume level by a minimum of 15dB.

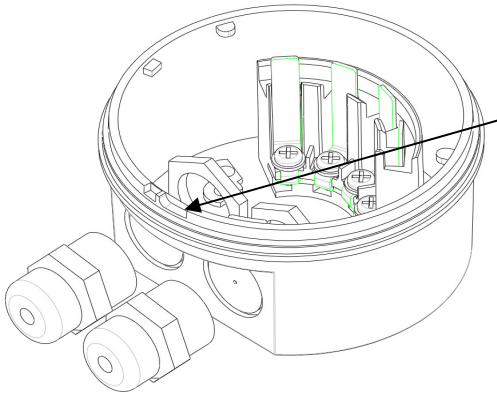

Fig.1 Remove tab to lock sounder

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Connection Details

The Sounder must be powered via a suitable Zener barrier or Galvanic Isolator to prevent damage to the sounder, see Table 1 for recommended IS Interfaces

Standard Connection

This the normal connection when you simply want to switch on the Sounder when power is applied through the interface as shown in Fig 1.

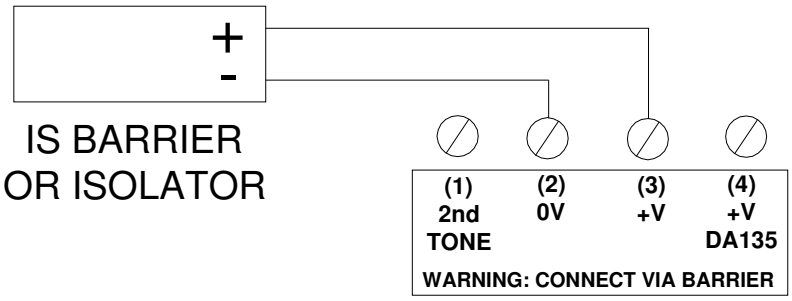

Fig 1

Second Tone

When it is required to use the second tone it can be set by connecting 0V to the 2nd tone terminal as shown in Fig 2.

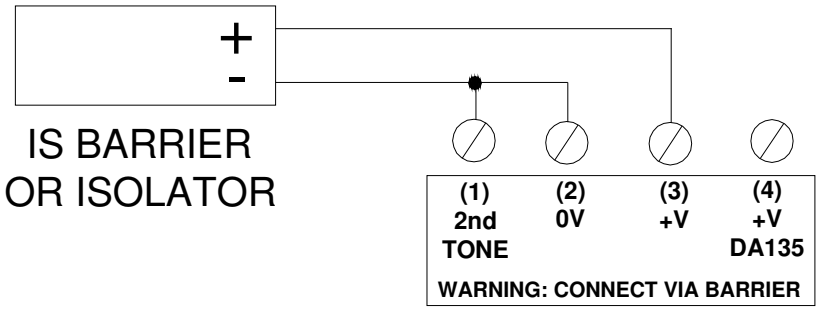

Fig 2

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Switched second Tone

In many applications it is necessary to use the first tone but switch to the second tone under certain process conditions. For example, use the second tone as an additional warning that the process has changed. In this situation the connection is similar to the standard connection shown above but with an additional switch to link the 2nd Tone terminal to 0V when it is required to switch to the 2nd Tone. This is shown in Fig 3.

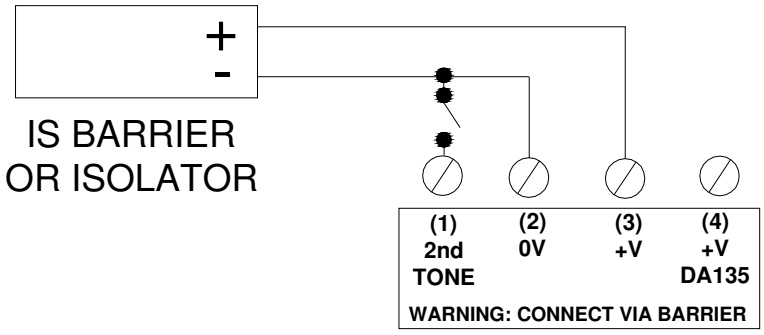

Fig 3

Connection from DA135 Beacon

When using the DA132 in conjunction with the DA135 Beacon to create a single point Annunciator the power is provided directly from the Beacon which provides a suitable intrinsically safe output that matches the DA132 and gives the highest possible Sound output.

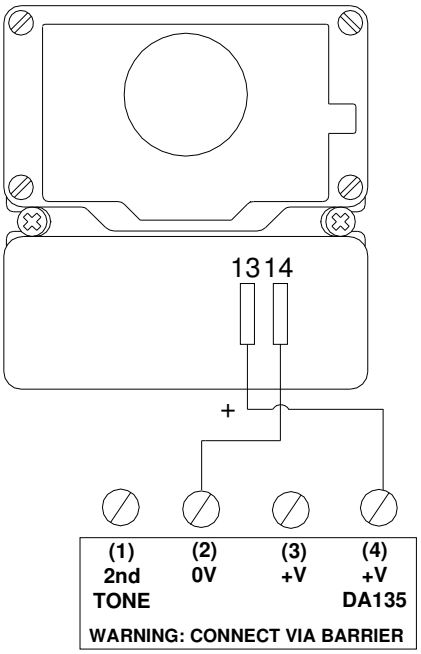

Fig 4

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Labelling

The sounder is shipped with the following labels:-

- A label marking with the appropriate Serial No. and manufacturing date on the bottom of the enclosure.
- A Certification Label as shown in Fig 5 showing all relevant certification information.

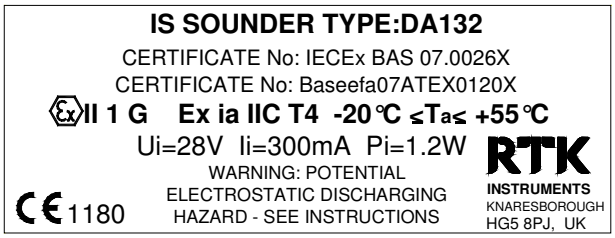

Fig 5

Specification

Standards: ATEX certified to EN 60079-0:2004 and EN60079-11:2007
IECEx certified to IEC60079-0:2004 and IEC60079-11:2006

Approved for II 1G Ex ia IIC T4 (Ta –20°C to +55°C)

Location
Zone 0, 1 or 2. Gas Group, IIC, IIB or IIA,
Temp Class up to T4

Certificate No's
Baseefa07ATEX0120X
IECEx BAS 07.0026X

Safety Parameters
Vi = 28V
Ii = 300mA
Pi = 1.2W
Ci = Li = 0
Please refer to EC Type Examination certificates for full details on suitable interface devices

Supply
12 to 24VDC +/-20%
Max current, 44mA @24V, max 40mA @ 12V

EMC Compliance
Immunity to EN61000-6-2 : 2005
Emissions to EN6100-6-4 : 2007

Environment
Operating temperature : -20°C to +55°C
Storage temperature: -20°C to +80°C
Humidity: 0-95% RH, non condensing

Protection
IP65

Construction
High impact, flame retardant polycarbonate

Cable Entry
The base has three knockouts, two on the side and one on the base, to accommodate a 20mm conduit or M20 cable glands.

Connections
For conductors up to 2.5mm^2

Recommended IS Interfaces

Nominal Supply	Barriers/Isolators
24V	MTL7728P+, MTL7728+, (MTL7729P+ for IIB only) MTL5521
12V	MTL7715P+

Table 1

Special Conditions for use
The certificate number has an 'X' suffix, which indicates that the certificate contains one of more special conditions for safe use. These are below:

Electrostatic Risk: The equipment shall not be directly installed in any process where its enclosure might be electro-statically charged by the rapid flow of a nonconductive media. Care must be taken when cleaning, and if this is necessary it must be done with a damp cloth.

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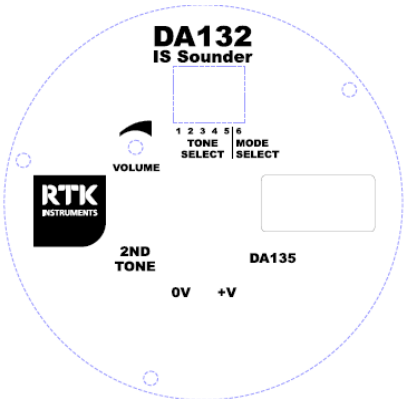

Fig 6

Tone Selection
The required tone should be selected by referring to Table 2 below. The first 5 DIL switches of the DIL switch on the PCB should then be set to the code as shown (1 = ON, 0 = OFF).

Mode Selection
The Sounder has two modes Normal Mode for standard use at 12 or 24VDC using a suitable interface device and DA135 Mode when used in conjunction with the DA135 IS Beacon as shown below. To select use DIL switch 6, ON for Normal Mode and OFF for DA135 Mode

Sound Level
The output sound level shown is Table 2 is for a Sounder powered from a suitable barrier or isolator (listed in Table 1), fed by 24VDC. To reduce the sound output, by up to 15dB turn the potentiometer in the anti-clockwise direction.

Connection with the DA135
The DA132 can be connected directly to the DA135 Intrinsically Safe Beacon to create a single point annunciator. To be used in this Mode the Sounder must be in DA135 Mode by putting DIL switch 6 into the OFF position.

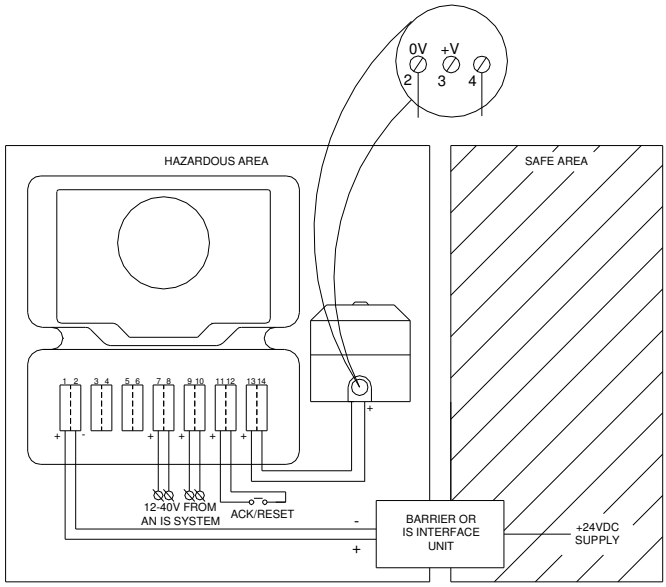

Fig 7

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Tone Table

TONE	TONE TYPE	TONE DESCRIPTION/ APPLICATION	DIP SWITCH 1_2_3_4_5	2ND STAGE TONE	PEAK SOUND LEVEL (dBA @ 1m)
1.	———	970Hz (BS5839-1:2002)	O-O-O-O-O	18	95.7
2.	⊓⊔⊓⊔	800Hz/970Hz @ 2Hz (BS5839-1:2002)	O-O-O-O-I	1	95.5
3.	⩘⩘	800Hz – 970Hz @ 1Hz (BS5839-1:2002)	O-O-O-I-O	1	96.6
4.	– – – –	970Hz 1s OFF/1s ON (Apollo Fire Systems Alert Tone, BS5839-1:2002)	O-O-O-I-I	5	95.6
5.	⊓⊔⊓⊔	970Hz, 0.5s/ 630Hz, 0.5s (Apollo Fire Systems Evacuate Tone, BS5839-1:2002)	O-O-I-O-O	1	95.5
6.	⊓_⊓_	554Hz, 0.1s/ 440Hz, 0.4s (France – AFNOR NF S 32 001)	O-O-I-O-I	1	93.2
7.	⩘⩘⩘	500 – 1200Hz, 3.5s/ 0.5s OFF (Netherlands – NEN 2575:2000)	O-O-I-I-O	1	95.7
8.	– – – –	420Hz 0.625s ON/0.625s OFF (Australia AS1670 Alert tone)	O-O-I-I-I	9	92.9
9.	⩘⩘⩘	500 – 1200Hz, 0.5s/ 0.5s OFF x 3/1.5s OFF (Australia AS1670 Evacuation tone)	O-I-O-O-O	1	94.4
10.	⊓⊔⊓⊔	550Hz/440Hz @ 0.5Hz	O-I-O-O-I	19	94.4
11.	--- ---	970Hz, 0.5s ON/0.5s OFF x 3/ 1.5s OFF (ISO 8201 Low tone)	O-I-O-I-O	1	95.6
12.	--- ---	2850Hz, 0.5s ON/0.5s OFF x 3/1.5s OFF (ISO 8201 High tone)	O-I-O-I-I	1	92.5
13.	⩙⩙	1200Hz – 500Hz @ 1Hz (DIN 33 404)	O-I-I-O-O	1	95.5
14.	———	400Hz	O-I-I-O-I	18	91.3
15.	⊓⊔⊓⊔	550Hz, 0.7s/1000Hz, 0.33s	O-I-I-I-O	1	96.2
16.	⩘⩘	1500Hz – 2700Hz @ 3Hz (Vandal Alarm)	O-I-I-I-I	1	101.2
17.	———	750Hz	I-O-O-O-O	1	92.9
18.	———	2400Hz	I-O-O-O-I	1	99.8
19.	———	660Hz	I-O-O-I-O	18	92.7
20.	– – – –	660Hz 1.8s ON/1.8s OFF	I-O-O-I-I	19	92.7
21.	– – – –	660Hz 0.15s ON/0.15s OFF	I-O-I-O-O	19	92.3
22.	⊓⊔⊓⊔	510Hz, 0.25s/ 610Hz, 0.25s	I-O-I-O-I	1	93.4
23.	⊓⊔⊓⊔	800/1000Hz 0.5s each (1Hz)	I-O-I-I-O	1	94.6
24.	⩘⩘	250Hz – 1200Hz @ 12Hz	I-O-I-I-I	1	91.8
25.	⩘⩘	500Hz – 1200Hz @ 0.33Hz	I-I-O-O-O	1	95.7
26.	⩘⩘	2400Hz – 2900Hz @ 9Hz	I-I-O-O-I	18	94.5
27.	⩘⩘	2400Hz – 2900Hz @ 3Hz	I-I-O-I-O	18	93.9
28.	⩘⩘	800Hz – 970Hz @ 100Hz	I-I-O-I-I	1	96.6
29.	⩘⩘	800Hz – 970Hz @ 9Hz	I-I-I-O-O	1	96.7
30.	⩘⩘	800Hz – 970Hz @ 3Hz	I-I-I-O-I	1	96.8
31.	– –	800Hz, 0.25s ON/1s OFF	I-I-I-I-O	1	94.4
32.	⩘⩘⩘	500Hz – 1200Hz, 3.75s/0.25s OFF (AS2220)	I-I-I-I-I	8	95.7

Table 2

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Maintenance

During the life of the sounder, it should require little or no maintenance. However, if abnormal or unusual environmental conditions occur or due to plant damage or accident etc, then a visual inspection is recommended.

Faulty Units
If a fault is found faulty units should be returned to RTK for investigation and possible replacement.

Other RTK Products

RTK Instruments produce a range of complementary products for many applications in the Industrial Control and Instrumentation field for both safe and hazardous areas, as listed below.
All standard products come with a **5 year warranty** from this ISO9001:2000 approved company:

Alarm Annunciators
Rack Mounted Alarm Systems
Sequence of Event Recorders
Trip Amplifiers
Trip Monitoring Systems
Signal Converters and Isolators
Frequency Converters
Universal Panel Meters
Power Supplies
Loop Powered Isolators and Displays
Complete range of Hazardous Area products including:
- **Intrinsically Safe Alarm annunciators**
- **Explosion Proof Alarm annunciators**
- **LED Beacons**
- **Light Towers**
- **LED indicators**
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- **Sounders**
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EC DECLARATION OF CONFORMITY

This is to certify that the DA132 Intrinsically Safe Sounder

Manufactured by:-

RTK INSTRUMENTS LTD
ST JAMES BUSINESS PARK
KNARESBOROUGH
NORTH YORKSHIRE
HG5 8PJ

Conforms to the protection requirements of the following directives:

- Council directive 89/336/EEC (EMC Directive) to BS EN 61000-6-4 and BS EN 61000-6-2
- Council Directive 94/9/EC (ATEX Directive) to EN60079-0 and EN60079-11

The product is certified to:

Ex II 1G Ex ia IIC T4 (Ta –20°C to +55°C)

Certificate Nos:
Baseefa07ATEX0120X
IECEx BAS 07.0026X

The Quality System is certified and monitored by Baseefa Ltd, Rockhead Business Park, Staden Lane, Buxton, Derbyshire, SK17 9RZ

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PAUL HARTLEY - MANAGING DIRECTOR
Date: 12th March 2008

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